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| 10/696,416 | 10/28/2003 | Sanjay Verma | 3222-5 | 5357 |

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MARGER JOHNSON & MCCOLLOM, P.C.
210 SW MORRISON STREET, SUITE 400
PORTLAND, OR 97204

| EXAMINER | |
|---|---|
| PYO, MONICA M | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/696,416 | VERMA ET AL. | |
| | Examiner | Art Unit | |
| | MONICA M. PYO | 2161 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

**DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/15/2008 has been entered.

2. Claims 1-24 are currently pending in this application. Claims 1, 5, 10, 14, 18 and 23 are independent claims. In the Amendment filed on 5/15/2008, claims 1, 5-6, 9-10, 14, 18 and 23 are amended. Claims 1-24 are rejected.

***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 5/27/2008 was filed and is being considered by the examiner.

***Claim Objections***

4. The claim amendment is received on 5/15/2008. The changes are acknowledged and therefore, the claim objections made in a prior Office Action regarding claim 9 is withdrawn.

5. Claim 1 is still objected to because of the following informalities:

Regarding Claim 1, this claims, in view of MPEP 1.121 (c), does not disclose the changes that have been made relative to the immediate prior version (5/17/2007) of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or few consecutive characters.

In the instant case, claim 1 in the amendment filed on 11/7/2007 and 5/15/2008 do not show the limitation of "that initiate a subgroup."

Appropriate corrections are required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,745,747 issued to Chang et al. (hereinafter Chang).

Regarding claim 23, Chang discloses a method comprising:

**A). assigning a first activity identifier and a transaction identifier to a first group of database access instructions for a transaction,** as a single transaction can have multiple processes and each process can request a resource lock (Chang: col. 10-26);

**B). assigning a first set of multiple locks to a first set of data items** (i.e., LRBs ahead of the current LRB) **accessed by the first group of database access instructions, the multiple locks assigned to different ones of the first set of data items** (i.e., each lockable resource) **according to the first subgroup of database access instructions,** as the lock manager maintains a separate queue of lock requests for each lockable resource (Chang: col. 3, lns. 27-36 and 53-62; col. 4, lns. 11-19);

**C). identifying a second subset of multiple different data items** (i.e., current LRB) **from the first set of data items according to the first group of database access instructions**, as the lock manager checks to see if there are any LRBs in a wait state in the queue which are ahead of the current LRB (Chang: col. 3, lns. 53-col. 4, lns. 10)**;**

**D). assigning a second activity identifier and the same transaction identifier to a second group of database access instructions for the same transaction that modify the second subset of data items identified the same transaction that modify the second subset of multiple different data items identified by the first group of database access instructions,** as the lock manager compares the GGM of the requested resource with the requested lock mode in the LRB to see whether the resource is available (Chang: col. 4, lns. 1-19);

**E). assigning a second set of multiple locks to the second subset of data items, the second set of multiple locks having a different lock duration than the first set of multiple locks**, as the lock manager inserts the current LRB into the queue where LRB contains the data storage fields identifying the resource, mode, duration and the status (Chang: col. 3, lns. 36-67)**;**

**F). releasing the first set of multiple locks for all of the first set of data items that are not part of the second subset of data items only after the second group of database access instructions have completed**, as the process that originally granted the lock can release it by sending a release request containing that process' process ID to the lock manager (Chang: col. 4, lns. 34-59; figs. 2-3)**; and**

**G). releasing the entire second set of locks only when all of the operations for the second group of database access instructions have completed modification of the second subset of multiple different data items**, as the transaction commits or rolls back, the lock

manager uses the transaction ID to release all locks belonging to the transaction (Chang: col. 4, lns. 34-59; figs. 2-3).

Regarding claims 24, Chang discloses the method including releasing all of the first set of locks in one operation and releasing all of the second set of locks in one operation (Chang: col. 4, lns. 34-59).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-2, 4-6 and 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang as applied to claims 23 and 24 above, in view of U.S. Patent No. 5,287,521 issued to Nitta et al. (hereinafter Nitta).

Regarding Claims 1 and 5, Chang discloses a database management system, comprising:

**a processor configured to** (Chang: col. 3, lns. 8-10)**:**

**A). associate multiple different activities** (i.e., one or more processes) **with a same transaction** (i.e., transaction comprising a lock and processes the locked resource)**, each of the multiple different activities each consisting of a separate different associated subgroup of program instructions for the same transaction,** as to multiple processes and the lock manager

maintains a separate queue of lock requests for each lockable resource (Chang: col. 3, lns. 19-36),

**B). for each different subgroup of program instructions, initiate a different associated subgroup of multiple different read and/or write actions (**i.e., commit or rollback the changes) **that access on an associated group of multiple different data items,** as to the lock manager allocates and places a lock request block [LRB] in the queue (Chang: col. 3, lns. 19-36);

**C). use and assign only one single separate lock duration (**i.e., shared ID**) for all of the multiple different data items associated with each different subgroup of program instructions associated with each of the different activities (**i.e., one or more different process IDs**),** as the shared ID field contains a unique value identifying the lock (Chang: col. 3, lns. 37-52)**;**

**D). maintain the multiple different locks on all of the multiple different data items associated with the same activities (**i.e., multiple processes in one transaction**) and then releasing all of the multiple different locks for all of the different data items associated with the same activities together only when all of the subgroup of program instructions associated with the same activities are completed so that all of the multiple different locks on all of the multiple different data items associated with the same activities have a same lock duration,** as to the lock manager uses the transaction ID to release all locks belonging to the transaction and the shared ID (Chang: col. 3, lns. 37-52; col. 4, lns. 33-59; fig. 3).

Although Chang discloses the system with shared lock mode by using a shared ID and multiple different processes in one transaction (Chang: col. 4, lns. 21-59), Chang does not explicitly disclose its database management system comprising:

**E). release all of the locks on a first set of multiple different data items associated with a first activity of the transaction while a second set of data items that include at least some of the first set of data items from the first activity, but that are associated with a second activity for the same transaction, remain locked for a second separate single lock duration associated with a second activity.**

However, Nitta disclose the system comprising:

**E). release all of the locks on a first set of multiple different data items associated with a first activity of the transaction while a second set of data items that include at least some of the first set of data items from the first activity** (i.e., the shared mode lock simultaneously obtain the exclusive mode lock)**, but that are associated with a second activity for the same transaction, remain locked for a second separate single lock duration associated with a second activity,** as a typical conversion from the share mode lock into the exclusive lock mode (Nitta: col. 14, lns. 41-59)**.**

It would have been obvious to a person with ordinary skill in the art at the time of invention to modify the teachings of Chang with the teachings of Nitta to utilize the conversion method from a shared lock mode to a exclusive lock mode to enhance the system to access a data to share and among the concurrently operating process under the multiprocessing environment (Nitta: col. 1, lns. 8-18).

Regarding Claim 2, Chang and Nitta disclose the system wherein one of the activities include a group of individual shared lock operations (i.e., a shared ID) and the processor activates locks for each of the individual shared lock operations in the group and releases the locks only when the all of the individual shared lock operations in the group are completed (Chang: col. 4, lns. 21-59).

Regarding Claims 4 and 8, Chang and Nitta disclose the system wherein the processor releases all of the multiple different locks associated with the same activities in one operation only when all of the multiple different subgroup of program instructions associated with the same activities are completed (Chang: col. 4, lns. 21-59).

Regarding claim 6, Chang and Nitta disclose the method further comprising releasing all of the locks on a first set of multiple different data items associated with a first activity of the transaction while a second set of data items that include at least some of the first set of data items from the first activity, but that are associated with a second activity for the same transaction, remain locked for a second separate single lock duration associated with a second activity (Chang: col. 2, lns. 21-59) and (Nitta: col. 14, lns. 41-59).

Regarding claims 9 and 22, Chang and Nitta disclose the method including:

**A). assigning a same unique activity identifier to multiple different arbitrary database access instructions that constitute the different activities in the transaction, the database access instructions performing one or more operations on multiple different data**

**items in a database and the activity identifier** (i.e., process ID) **assigned to and associated with the database access instructions independently of any relationship that may exist between the multiple different data items in the database accessed by the database access instructions** (Chang: col. 3, lns. 37-52; col. 4, lns. 33-59; fig. 3);

**B). assigning multiple locks to the multiple data items corresponding with the operations performed on the multiple data items pursuant to the database access instructions** (Chang: col. 4, lns. 1-33); and

**C). preventing other transactions and other associated activities from accessing the multiple different data items until all of the multiple operations are completed for all of the database access instructions assigned to the activity identifier** (Chang: col. 3, lns. 53-67).

Regarding claims 10, 14 and 18, Chang and Nitta disclose a database management system, comprising:

**A). a processor configured to assign activity identifiers** (i.e., process Ids) **to different individual subgroups of database access instructions for a same transaction that each perform one or more operations** (i.e., commit or roll back) **on multiple data items in a database, the activity identifiers assigned to and associated with the database access instructions independently of any relationship that may exist between the multiple data items in the database accessed by the database access instructions,** as to the lock manager allocates and places a lock request block [LRB] in the queue (Chang: col. 3, lns. 19-36);

**B). the processor further configured to assign multiple locks to the multiple data items corresponding with the operations performed on the multiple data items pursuant to**

**the database access instructions associated with the same activity identifiers and further configured to only release the multiple locks on the multiple data items when all of the multiple operations are completed for all of the database access instructions assigned to the same activity identifiers,** as to the lock manager uses the transaction ID to release all locks belonging to the transaction (Chang: col. 3, lns. 37-52; col. 4, lns. 33-59; fig. 3).

Regarding claims 11, 15 and 19, Chang and Nitta disclose the system wherein the processor is further configured to assign the activity identifiers to an arbitrary group of related database access instructions performing operations on an arbitrarily related group of data items (Chang: col. 4, lns. 21-59).

Regarding claims 12, 16 and 20, Chang and Nitta disclose the system wherein the processor is further configured to assign common transaction identifiers to different related groups of database access instructions assigned different activity identifiers and coordinate when the different related groups of database access instructions are allowed to perform operations on the data items (Chang: col. 3, lns. 53-col. 4, lns. 33- Chang discloses the sequence steps involved in locking a resource and the process of the lock manager having one transaction with multiple different LRBs).

Regarding claims 13, 17 and 21, Chang and Nitta disclose the system wherein the processor is configured to assign a first transaction identifier to a group of individual shared operations and assign locks to the data items associated with the shared operations, the processor

further configured to hold the locks until all of the individual shared operations in the group have been completed (Chang: col. 3, lns. 19-52; col. 4, lns. 34-59; figs. 2-3).

10. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang as applied to claims 23-24 above, in view of U.S. Patent No. 5,497,483 issued to Beardsley et al. (hereinafter Beardsley).

Regarding Claims 3 and 7, Chang discloses the system including individual activities for the transaction, the processor assigning activity identifiers to the activities (Chang: col. 3, lns. 19-36).

Chang does not explicitly disclose: memory containing a bit map that tracks activities.

However, Beardsley disclose: memory containing a bit map that tracks activities and (Beardsley: col. 10, lns. 7-18; fig. 9).

It would have been obvious to a person with ordinary skill in the art at the time of invention to modify the teachings of Chang with the teachings of Beardsley to utilize the bit map setting with the motivation to enhance the controlling of a track transfers (Beardsley: col. 9, lns. 53-66).

***Response to Arguments***

11. Applicant's arguments with regarding the reference Chang deemed to be moot since the new rejection based on reference Chang in view of Nitta is made in this Office Action.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONICA M. PYO whose telephone number is (571)272-8192. The examiner can normally be reached on Tu & Thur 7:00 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

*mpyo*

/Apu M Mofiz/
Supervisory Patent Examiner, Art Unit 2161